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# Reflex anal dilatation associated with severe chronic constipation in children

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SUMMARY Data were collected from children with severe chronic constipation, and the appearance of the anus at presentation was noted. A visibly relaxed sphincter (indicating a degree of reflex anal dilatation) was seen in 20 children out of the 129 in whom this sign was sought. The only differentiating characteristic in this group of children was the greater degree of faecal loading judged on palpation of the abdomen. This evidence supports the hypothesis that constipation of such severity that it was referred to a specialised clinic can produce signs that may lead to an erroneous diagnosis of sexual abuse by anal penetration.

There have been a number of reports urging caution about the diagnosis of sexual abuse in children based on physical evidence alone.[1 2] These followed the paper by Hobbs and Wynn[3] that described the importance of the anal appearance in children who had been abused. The controversies in both the medical and popular press, and the evidence presented to the Cleveland child abuse inquiry, led me to review details of a long term follow up study of children who had presented with chronic constipation. The standardised history and examination of these children included a record of whether the anal sphincter was visibly relaxed on inspection at the child's first visit.

When the rectum is distended naturally by the arrival of faeces, or artificially by the inflation of a balloon, the internal anal sphincter is inhibited. This anorectal reflex is mediated by the myenteric nerve plexus and modified by the spinal nerves. The reflex is absent from the Hirschsprung's aganglionic segment[4] but exaggerated in the neurogenic rectum. The anorectal reflex was first described in dogs in 1877 by Gowers[5] and in 1935 Denny-Brown and Robertson described it in man.[6] In a non-constipated control group (n=24) the reflex was seen clearly on anal manometry in all but one patient.[7] I had therefore expected to see reflex anal dilatation in all those children who had pronounced faecal loading palpable on abdominal examination, and not in that small proportion of children who had extremely short segment Hirschsprung's disease. I found it impractical, however, to look for this sign routinely as it was often difficult to inspect closely if there was a lot of soiling, and often children were reluctant to be examined in such a way on the first visit to the clinic. Nevertheless I report the findings in 129 children who presented to this tertiary referral centre with chronic constipation between 1979 and 1983 in whom the state of relaxation of the anal sphincter on inspection was recorded.

Details of the child's history with special reference to symptoms of constipation, soiling, anal discomfort, blood passed from the rectum, previous treatment, family background, and social and psychiatric factors were collected on standard questionnaires and the data stored on computer. Details of some aspects of the examination were also recorded including the degree of faecal loading assessed from palpation of the abdomen, and whether the anal sphincter appeared relaxed.

## Patients

Data were available for 129 children, of whom 75 (58%) were boys. Their mean age at examination was 5·4 years (range 1·3–15·5).

## Results

Of the 129 children 20 (15%) had visibly relaxed sphincters; 14 (70%) of the 20 were boys compared with 61 of 109 (56%) in the non-relaxed group. The degree of faecal loading felt on abdominal examination was graded from 0 (no faeces felt) to 6 (faeces palpable to the level of the ribs). Faeces palpable to level of umbilicus scored 3. The group with relaxed sphincters had more faecal loading than the non-relaxed group (table 1), which confirms the associa-

Table 1 *Differences in faecal loading grades*

| *Faecal loading grade* | *Relaxed group No (%)* | *Group not relaxed No (%)* |
|---|---|---|
| 0 | 0 | 59 (54) |
| 1 | 5 (25) | 12 (11) |
| 2 | 4 (20) | 18 (16) |
| 3 | 8 (40) | 15 (14) |
| 4 | 2 (10) | 1 (1) |
| 5 | 1 (5) | 3 (3) |
| 6 | 0 | 1 (1) |
| Total | 20 (100) | 109 (100) |

tion between faecal loading palpable on abdominal examination and the visibly relaxed sphincter.

There was no difference in the age at presentation between the groups, the mean (SD) age of the group with relaxed sphincters was 5·6 years (2·45) and for the non-relaxed group 5·33 years (3·07). Table 2 shows the usual bimodal distribution of the age of onset of chronic constipation with no obvious skewing of the data in the group with relaxed sphincters.

I routinely recorded my impression of the child at the end of the first or second consultation; though this is only a rough guide to the behaviour in the consulting room, the assessment was made without bias in relation to sexual abuse as it was done before the current emphasis on the reflex anal dilatation sign was published. Table 3 shows that there were no differences in behaviour between the two groups.

A subjective grading was also made routinely of the overall features in both history and examination that suggested that psychological factors may have been playing a part in the cause or persistence of the bowel symptoms. This impression of the child and family has previously been shown to correlate with a more detailed accumulated score of psychiatric factors calculated from a number of behavioural, familial, and environmental variables collected in the standardised questionnaire.[7] The group with relaxed sphincters had less psychiatric disturbances than the non-relaxed group.

I also correlated the appearance of the sphincter with the previous treatments in case the appearance of the anus depended on whether anal penetration by therapeutic agents was the cause of the relaxed sphincter. Table 4 shows little difference between the groups in the treatments which had been given before referral to the clinic. The group with relaxed sphincters had received slightly more invasive treatment as would be expected from the increased severity of their constipation as judged by the degree of faecal loading.

The hospital case notes were traced for 18 of the 20 children who had relaxed sphincters; table 5 summarises the major features. In only one case was there a number of features that might have suggested sexual abuse; case 19 had extremely mild constipation, failed to attend for follow up examination, and his parents did not reply to a letter. He was admitted to his local hospital having taken an overdose of aspirin at the age of 5 years. His mother was contacted by telephone and said that he had

Table 2 *Age of onset of constipation and anal appearance*

| *Age of onset* | *Relaxed group No (%)* | *Group not relaxed No (%)* |
|---|---|---|
| <1 month | 4 (20) | 25 (23) |
| 1–5 months | 4 (20) | 18 (16) |
| 6–12 months | 4 (20) | 9 (8) |
| 1–2 years | 3 (15) | 20 (18) |
| 2–3 years | 4 (20) | 24 (22) |
| 4–6 years | 0 | 7 (6) |
| 6–8 years | 1 (5) | 1 (1) |
| 8–10 years | 0 | 1 (1) |
| 10–15 years | 0 | 4 (4) |
| Total | 20 (100) | 109 (100) |

Table 3 *Observer's description of child's behaviour*

| *Description* | *Relaxed group No (%)* | *Group not relaxed No (%)* |
|---|---|---|
| Normal | 15 (75) | 77 (71) |
| Shy | 2 (10) | 9 (8) |
| Aggressive | 0 | 1 (1) |
| Retarded | 1 (5) | 4 (4) |
| Immature | 0 | 7 (6) |
| Anxious | 1 (5) | 8 (7) |
| Depressed | 1 (5) | 2 (2) |
| Other | 0 | 1 (1) |
| Total | 20 (100) | 109 |

Table 4 *Invasive treatment and anal appearance*

| *Treatment* | *Relaxed group No (%)* | *Group not relaxed No (%)* |
|---|---|---|
| Suppositories | 15 (75) | 71 (65) |
| Enemas | 8 (40) | 36 (33) |
| Anal dilatation under general anaesthesia | 2 (10) | 8 (7) |
| Total | 20 (100) | 109 (100) |

Eight (40%) of the relaxed group and 30 (28%) of the not relaxed group had both enemas and suppositories; two (10%) of the relaxed group and five (5%) of the not relaxed group had had all three types of treatment.

Table 5 *Features of children with visibly dilated anuses when they presented with chronic constipation*

| *Case No* | *Date at presentation* | *Age (years)* | *Degree of faecal loading* | *Diagnosis* | *Surgical treatment* | *Psychological features* | *Follow up* |
|---|---|---|---|---|---|---|---|
| 1 | January 1980 | 6·7 | 1 | Megarectum | Anal dilatations (2) | None | Still taking laxatives after 63 months |
| 2 | December 1979 | 5·5 | 3 | Megarectum | Anal dilatation (1) | Caravan home | Rapid improvement especially after rehousing |
| 3 | May 1981 | 3·0 | 2 | Normal colon; constipation from birth | None | Slight speech delay only | Not taking laxatives after 3 months |
| 4 | December 1983 | 1·5 | 3 | Anteriorly placed anus | None | None | Not taking laxatives after 4 months |
| 5 | November 1979 | 5·3 | 2 | Megarectum | Anal dilatation (1) | None | Not taking laxatives after 43 months |
| 6 | December 1980 | 3·5 | 4 | Mild megarectum | Anal dilatation (1) | Problems with pot-training | Not taking laxatives after 10 months |
| 7 | December 1979 | 6·5 | 3 | Megarectum | Anal dilatation and internal sphincterotomy | None | Not taking laxatives after 49 months |
| 8 | February 1980 | 5·0 | 1 | Anal fissure | None | Pain during pot-training | Not taking laxatives after 4 months |
| 9 | February 1981 | 12·0 | 3 | Anal stenosis | Anoplasty | None | Not taking laxatives after 24 months |
| 10 | November 1979 | 6·0 | 5 | Megarectum | Anal dilatation (1) | Helped by education welfare officer | Lost to follow up |
| 11 | January 1982 | 3·0 | 1 | Megarectum | Anal dilatation (1) | None | Not taking laxatives after 15 months |
| 12 | April 1981 | 1·8 | 4 | Megarectum | Anal dilatation (1) | None | Not taking laxatives after 61 months |
| 13 | March 1979 | 3·5 | 3 | Megarectum; high anal stricture (5 cm) | Anal dilatation and internal anal sphincterotomy | Receiving psychotherapy | Not taking laxatives after 75 months |
| 14 | December 1979 | 3·9 | 1 | Mild megarectum | Anal dilatation (1) | Speech delay; fear of lavatory; receiving psychotherapy | Not taking laxatives after 13 months |
| 15 | April 1982 | 8·0 | 3 | Huge megarectum | Anal dilatations (4) | Stutter; receiving psychotherapy | Still taking laxatives |
| 16 | March 1982 | 6·0 | 3 | Megarectum; bladder diverticulae | Anal dilatation (1) | Highly strung; sensitive | Took senna occasionally after 26 months |
| 17 | December 1979 | 6·5 | 2 | Megarectum; large anal skin tag | None | Pain during pot-training | Not taking laxatives after 10 months |
| 18 | October 1983 | 5·0 | 1 | Mild rectal loading | None | Took overdose of aspirin aged 5 years | Did not attend for follow up or respond to letter |
| 19 | | | 3 | Hospital records unavailable | | | |
| 20 | | | 2 | | Anal dilatation (1) | Not known | Not taking laxatives after 9 months |

stopped soiling, was still reluctant to pass stools and tended to accumulate them but did not require regular laxatives. There had been no overt psychiatric problem and his slight slowness at school was caused by difficulty in hearing that was being treated.

## Discussion

These data support the hypothesis that the anal appearances that are said to be characteristic of anal penetration in children who have been sexually abused may be mimicked by chronic constipation. The other features in the history, examination, and progress of the children who had first been recorded as having visibly relaxed sphincters 10 years ago suggested that the difference between them and the children in whom this sign was not seen was the degree of faecal loading. There seemed to be no more psychiatric disturbances among those with relaxed sphincters, and nothing in their subsequent history to support the belief that they had been abused. In only one of the 20 children was there a suspicious later history (case 18, table 5), but there have been no further symptoms during the subsequent four years and no extra help has been sought by his mother despite a recent offer.

It is possible that we may have missed other evidence that some of the children we had assumed to be only constipated had in fact been sexually abused. I have followed up a number of these children personally; their signs always came and went depending on the state of their bowels and so I am confident that I am right in recommending care in the interpretation of this sign. Family or individual psychotherapy has in some cases brought to light possible evidence of sexual abuse of children; occasionally children have produced symbols in their drawings that are highly suggestive of a previous violation or assault. Sadly, this can sometimes be seen as having arisen as a result of coercive or invasive treatment such as enemas or suppositories given without adequate sedation. It is impossible for children to separate these experiences clearly from deliberate sexual abuse; this is an important warning to those managing children with constipation as well as being another factor that may lead to confusion unless interviews are carried out with extreme care and with knowledge of what treatment the child has already undergone.

The evidence here is obviously confined to children with severe constipation. There is also debate on whether reflex anal dilatation occurs in normal, healthy children who have not been abused. Too little is known about the normal appearance of the anus in healthy children at different ages. A control study of a large cohort of volunteers is greatly needed but there are obvious ethical problems in recommending recurrent inspection of the anuses of otherwise healthy children.

The normal anal sphincter relaxes in response to a rectal contraction (the anorectal reflex). This is often seen in the resting record during anorectal manometry. As the pressure rises in the rectum the pressure in the anus falls. It may be that emotions that increase colonic and rectal activity could increase the frequency of spontaneous rectal contractions and the associated reflex anal dilatation. Whether a clinical examination could produce sufficient stress to produce this effect in the absence of previous abuse or constipation is open to question; it is also possible that anxiety or fear could exaggerate this normal reflex.

I am sure that many children have been sexually abused and that this has not been diagnosed. Many adults have reported how such experiences have spoiled their lives. This has understandably led to doctors becoming more vigilant in order to protect children and, if they have already been abused, to prevent further harm. Many parents of abused children have been unaware that the other parent was abusing the child, and I am equally sure some have even tried to hide it from themselves but have had a compulsion to continue. Children may be too young or too frightened to ask for help even from a relation. Doctors are expected to do all they can to safeguard children, and there are tragic results when they (or social workers) fail to prevent abuse.

Every action taken to protect a child is the result of a difficult decision, and that is why it requires a careful legal procedure. To compare this protection with a safety net, problems may arise if the mesh of the net is too narrow or too wide. If we have a system in which it is so tight that not a single case of abuse is missed, then it is almost certain that innocent people will be wrongly accused. If the mesh is too loose, some cases of abuse will be missed, but it is unlikely that innocent families will be disrupted. It is for society to choose in which direction we should lean, and thereby potentially err. I feel that because of the unreliability of the anal signs described the present system is dangerously close to erring badly in the direction of disrupting innocent families.

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